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EXAMINER

YAM, STEPHEN K

ART UNIT PAPER NUMBER

2878

DATE MAILED: 03/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/060,148

Applicant(s)

ISHII ET AL.

Examiner

Stephen Yam

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                            | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 1, 2003 has been entered. Claims 1-18 are still pending.

### ***Claim Objections***

2. Claim 11 is objected to because of the following informalities:

In Claim 11, lines 9 and 15, "said light detecting means" lacks proper antecedent basis.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 18 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 18 recites "at least one of said optical systems" while only a single optical system is defined in the limitations of the parent claims. In addition, the optical system as an entirety

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cannot be placed external to a component (half-silvered mirror) of the optical system, as described in Claim 18. It appears that Applicant intended to recite that at least one *element* of said optical system was placed on an optical path from said light source unit to said reflector through said half-silvered mirror.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claim 16 is rejected under 35 U.S.C. 102(b) as being anticipated by Schaeede et al. US Patent No. 5,764,367.

Schaeede et al. teach (see Fig. 3) an apparatus for detecting a light-transmissive sheet-like body (1), comprising a light source unit (8) for emitting illuminating light (26), light detecting means (2) for detecting the illuminating light, and an optical system (23, 21) for leading the illuminating light as parallel-beam light (see Col. 5, lines 64-67) to the light-transmissive sheet-like body and converging (see Col. 6, lines 52-55) the illuminating light to said light detecting means, wherein an edge of the light-transmissive sheet-like body placed between said light source unit and said optical system is detected (see Col. 6, lines 60-67) based on a difference between two types of information, said two types of information including information of said illuminating light which is led to said light detecting means through said edge and another

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information of said illuminating light which bypasses said edge and is led to said light detecting means (see Col. 5, lines 13-20).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1, 2, 5-7, 9-11, 13, 15, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Halter US Patent No. 6,323,954 in view of Miranda US Patent No. 3,594,087.

Regarding Claims 1, 2, 5, 7, 10, 11, 13, 15, 17, and 18, Halter teaches (see Fig. 8) an apparatus for detecting a light-transmissive sheet-like body (G) comprising a light source unit (12) for emitting illuminating light, a reflector (R) for reflecting the illuminating light, light detecting means (11.1, 11.2, 11.3) for detecting the illuminating light which is reflected by said reflector, and an optical system (14, 15, 13.1, 13.2, 13.3) for leading (using (14)) the illuminating light reflected by said reflector to the light-transmissive sheet-like body and converging (using 13.1, 13.2, 13.3) the illuminating light reflected by said reflector to said light detecting means, wherein an edge (K) of the light-transmissive sheet-like body placed between said optical system and the reflector is detected based on a difference between two types of information, including information of said illuminating light which is led to said light detecting means through said edge and another information of said illuminating light which bypasses said edge and is led to said light detecting means (see Fig. 3 and Col. 4, lines 60-64). Regarding Claim 2, Halter

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teaches (see Fig. 2e) the light detecting means comprising a two-dimensional area sensor for obtaining two-dimensional distribution information of said illuminating light (see Col. 4, lines 41-43). Regarding Claim 5, Halter teaches the optical system comprising a telecentric optical system (see Fig. 8) for leading said illuminating light therethrough to said light detecting means. Regarding Claim 7, Halter teaches (see Fig. 8) the optical system comprising a half-silvered mirror (15) for leading the illuminating light emitted from said light source to said light-transmissive sheet-like body and leading the illuminating light reflected by said reflector to said light detecting means. Regarding Claim 10, Halter teaches (see Fig. 2e) the light detecting means as a CCD camera (see Col. 4, lines 41-43). Regarding Claim 11, Halter teaches the light detecting means as an image capturing means (see Col. 4, lines 41-43) and an image processor (see Col. 7, lines 4-5) for processing images captured by the image capturing means. Regarding Claim 13, Halter teaches the image processor scanning (see Fig. 6) the images captured by the image capturing means in the direction in which the light-transmissive sheet-like body is fed, said image processor detects the image density (see Fig. 6), and said image processor determines the position of an edge of said image to be where the image density changes by a predetermined amount (see Col. 6, lines 17-21 and 59-64 and Col. 7, lines 11-19). Regarding Claim 15, Halter teaches (see Fig. 8) the reflector reflecting illuminating light in a direction opposite to a direction in which the illuminating light comes to the reflector. Regarding Claim 17, Halter teaches (see Fig. 8) the illuminating light passing through the light-transmissive sheet-like body twice before entering said light detecting means. Regarding Claim 18, Halter teaches (see Fig. 8) at least one element (14) of said optical system placed on an optical path (A) from said light source unit to said reflector through said half-silvered mirror. Halter does not teach the illuminating light

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reflected by said reflector as parallel-beam light. Miranda teaches (see Fig. 2) a similar device, with an optical system (12, 30) for leading illuminating light (originating from (10)) reflected by a reflector (26) as parallel beam light (see Fig. 2) to a light-transmissive sheet-like body (22) and converging (30) the illuminating light reflected by said reflector to a light detecting means (32). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use parallel beam light from the illuminating light and converge the reflected parallel beam light to the light detecting means as taught by Miranda in the apparatus of Halter, to effectively confine the illuminating light to improve detection sensitivity through increased contrast.

Regarding Claim 6, Halter in view of Miranda teaches the apparatus in Claim 5, according to the appropriate paragraph above. Halter also teaches the telecentric optical system comprising a condenser lens (see Col. 4, lines 64-67) disposed on a side closer to said reflector. Halter does not teach an aperture member disposed at a focal point of said condenser lens on a side closer to said light detecting means. It is well known in the art to place an aperture member at a focal point of a lens, to maximally define the field of view of a light detector. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use an aperture member at a focal point of the lens in the apparatus of Halter in view of Miranda, to define the view of the light detecting means to maximally detect the light.

Regarding Claim 9, Halter in view of Miranda teaches the apparatus in Claim 1, according to the appropriate paragraph above. Halter does not teach the light-transmissive sheet-like body made of a photosensitive material and sensitive to visible light and the illuminating light having a wavelength of at least 850 nm. It is well known in the art that photographic film are photosensitive materials and are sensitive to visible light, and an infrared light source (750nm to

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1 $\mu$ m wavelength) is used in a detector device to prevent interference from the visible light spectrum. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a film sensitive to visible light as the light-transmissive sheet-like body and an illuminating light having a wavelength of at least 850nm, to use photographic film sensitive to visible light and an infrared light source of at least 850nm in the apparatus of Halter in view of Miranda, to provide edge detection in a film camera or scanner without affecting the photosensitive material of the film media.

9. Claims 3, 4, 12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Halter in view of Miranda as applied to Claims 1, 11, and 13, further in view of Anzai et al. US Patent No. 4,713,550.

Regarding Claims 3 and 4, Halter in view of Miranda teach the apparatus in Claim 1, according to the appropriate paragraph above. Regarding Claim 4, Halter teaches (see Fig. 8) a plurality of light detecting means (11.1, 11.2, 11.3) and processing means (see Col. 6, line 65 to Col. 7, line 5) for processing information obtained by said plurality of light detecting means. Halter does not teach a plurality of optical systems spaced from each other along the length of said light-transmissive sheet-like body or the processing means calculating the length of the light-transmissive sheet-like body. Anzai et al. teach (see Fig. 2) an apparatus for detecting a light-transmissive sheet-like body (see Col. 1, lines 35-39)) comprising a light source unit (LD<sub>1</sub>-LD<sub>4</sub>) for emitting illuminating light, a reflector (5) for reflecting the illuminating light, light detecting means (PD<sub>0</sub>-PD<sub>4</sub>) for detecting the illuminating light which is reflected by said reflector, wherein an edge of the light-transmissive sheet-like body placed between the



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converging optical system and the reflector is detected based on a difference between two types of information, including information of said illuminating light which is led to said light detecting means through said edge and another information of said illuminating light which bypasses said edge and is led to said light detecting means (see Col. 1, lines 45-62 and Col. 5, lines 38-66), also including a plurality of light detecting means spaced from each other along the length of the light-transmissive sheet-like body for calculating the length of the light-transmissive sheet-like body. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide multiple light detecting means spaced along the length of the light-transmissive sheet-like body as taught by Anzai et al. and provide an optical system for each light-detecting mean in the apparatus of Halter in view of Miranda, to determine document length for scanning in addition to edge detection for scan dimensions.

Regarding Claims 12 and 14, Halter in view of Miranda teach the apparatus in Claims 11 and 13, according to the appropriate paragraph above. Halter also teaches the image processor determining the positions of edges of said images (see Col. 6, line 65 to Col. 7, line 5). Halter does not teach said image processor determining the length of the light-transmissive sheet-like body based on the positions of edges. Anzai et al. teach (see Fig. 2) an apparatus for detecting a light-transmissive sheet-like body (see Col. 1, lines 35-39)) comprising a light source unit (LD<sub>1</sub>-LD<sub>4</sub>) for emitting illuminating light, a reflector (5) for reflecting the illuminating light, light detecting means (PD<sub>0</sub>-PD<sub>4</sub>) for detecting the illuminating light which is reflected by said reflector, wherein an edge of the light-transmissive sheet-like body placed between the converging optical system and the reflector is detected based on a difference between two types of information, including information of said illuminating light which is led to said light

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detecting means through said edge and another information of said illuminating light which bypasses said edge and is led to said light detecting means (see Col. 1, lines 45-62 and Col. 5, lines 38-66), and a processor (10) determines (see Col. 1, lines 35-39) the length of the light-transmissive sheet-like body based on the positions of edges. It would have been obvious to one of ordinary skill in the art at the time the invention was made to detect the length of the sheet-like body as taught by Anzai et al. in the apparatus of Halter in view of Miranda, to determine document length for scanning in addition to edge detection for scan dimensions.

10. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Halter in view of Miranda as applied to Claim 1, further in view of Ushio et al. US Patent No. 6,489,624.

Halter in view of Miranda teach the apparatus in Claim 1, according to the appropriate paragraph above. Halter does not teach the light source and the optical system connected to each other by an optical fiber for leading the illuminating light source. Ushio et al. teach (see Fig. 13) an apparatus with a light source unit (connected to the end of (71)) for emitting illuminating light, reflector (76) for reflecting the illuminating light, light detecting means (82) for detecting the illuminating light reflected by the reflector, and a converging optical system (72, 74, 75, 77, 78, 79), wherein the light source and the converging optical system are connected to each other by an optical fiber (71) for leading the illuminating light. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the optical fiber as taught by Ushio et al. in the apparatus of Halter in view of Miranda, to confine the light between the source and the converging optical system to maximize the emitted intensity onto the sheet-like body for improved detection.

### ***Response to Arguments***

11. Applicant's arguments with respect to claims 1-18 have been considered but are moot in view of the new ground(s) of rejection.

In addition, Applicant argues that Halter does not teach light information that bypasses the edge. Examiner asserts that Halter does indeed teach two kinds of light information, one that bypasses the edge (see Col. 4, lines 60-62) and one that is led through the edge (see Col. 4, lines 62-64). In addition, Halter explains that Fig. 8 is identical in functionality to Fig. 3 and 4 (see Col. 8, lines 19-22) except for a difference in physical placement. Finally, Examiner asserts that Applicant has mis-interpreted the previous rejection that elements 13.1 and 13.3 are directed towards the light sensors as stated in the claim language. As seen in the previous rejection, elements 13.1-13.3 correspond with the optical system while 11.1-11.3 correspond with the light detecting means, as consistent with the invention of Halter.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Yam whose telephone number is (571)272-2449. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (571)272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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**THANH X. LUU**  
**PATENT EXAMINER**